DOCUMENT RESUME

ED 270 433 SP 027 697

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TITLE Tasks in Times: Objects of Study in a Natural History of Teaching. Occasional Paper No. 95.
INSTITUTION Michigan State Univ., East Lansing. Inst. for Research on Teaching.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Feb 86
CONTRACT 400-81-0014
NOTE 35p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Classroom Environment; *Classroom Observation Techniques; Elementary Education; *Learning Strategies; *Staff Development; *Teacher Student Relationship; *Teaching Methods

ABSTRACT

This paper sets forth implications for staff development of a social constructivist perspective on school teaching, learning, and subject matter. The perspective is illustrated by an overview of the research-centered staff development work done in the beginning months of the Teachers' Conceptual Change in Practice Project. In the first half of the paper the author provides an overview of the staff development approach and defines key concepts of narrative understanding and enacted curriculum. The second half of the paper presents a social constructivist model of the social and academic dimensions of classroom tasks and illustrates the model with an example of a first-grade seatwork assignment. The paper argues that effective teaching necessarily involves mutual adaptation by teacher and student so that the social and academic task presented to the student fits the student's current mode and level of functioning. This adaptation requires the teacher's capacity through narrative understanding to conduct fine-tuned, on-the-spot analysis of the enacted curriculum of the moment as it is being experienced by students, and it also requires the teacher to possess the authority to alter classroom tasks to fit the learners who confront the tasks. The paper focuses more on the nature of the classroom tasks, and on teachers' understanding of and options for their construction, than it does on the notion of time spent by students in working at tasks. A two-page list of references concludes the document. (Author)

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Frederick Erickson

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Published By

The Institute for Research on Teaching
252 Erickson Hall
Michigan State University
East Lansing, Michigan 48824-1034

February 1986

This work is sponsored in part by the Institute for Research on Teaching, College of Education, Michigan State University. The Institute for Research on Teaching is funded primarily by the Office of Educational Research and Improvement, United States Department of Education. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the Office or the Department. (Contract No. 400-81-0014)

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Abstract

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TASKS IN TIMES: OBJECTS OF STUDY IN A NATURAL HISTORY OF TEACHING[1]

Frederick Erickson[2]

This paper has two main sections. In the first I discuss a staff development project that has just begun. I describe what I notice when visiting a classroom and I sketch the process of written and oral dialogue with the teacher that ensues, mentioning very briefly the topics of inquiry that emerge in our discussions. In the second I provide more background on the perspective that underlies my work with experienced teachers. The section presents a social constructivist view of work and tasks in classrooms. It concludes by presenting a model of the social and academic dimensions of classroom tasks environments. This sociocognitive model of teaching and learning informs the approach to classroom observation and staff development that is described in the first part of the chapter.

Looking in Classrooms with Teachers

A Staff Development Project

A few months ago I began working with a first-grade teacher, whom I will call Mrs. Smith. The work was being conducted with a set of colleagues under

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[1]This paper appeared as a chapter in (1986) K.K. Zumwalt (ed.), Improving Teaching (1986 ASCD Yearbook) (pp. 131-149) Alexandria, VA: Association for Supervision and Curriculum Development. The staff development and research effort described in this paper is a project of the Institute for Research on Teaching, titled Teachers' Conceptual Change in Practice. For further information on the project, contact the author at the address on the title page.

[2]Frederick Erickson is co-coordinator of the Teachers' Conceptual Change in Practice Project. He is also a professor with the Department of Teacher Education at Michigan State University. The author wishes to thank Cherie Wilcox for editorial assistance in the preparation of this paper, and to thank as well her husband, William Natho, for advice on the kinds of arithmetic reasoning that are involved in the example of a classroom task presented herein.

the auspices of the Institute for Research on Teaching. We worked with three first-grade teachers from the same building, their principal, and central administrators in a suburban school system in which the student population was diverse in social class. The particular elementary school in which we began our project was one of the two schools in the district that had the highest percentages of children from working-class families. The aims of our project were to conduct a new kind of staff development with classroom teachers and administrators, to study the process of implementation as it took place, and to document and reflect on what the university-based personnel and the school district-based personnel were learning during the course of the project.

A distinctive feature of this attempt at staff development was that we did not have a predetermined set of skills or insights to teach. Rather, we wanted to engage the teachers and administrators in looking at and reflecting upon what was happening routinely in the teachers' classrooms. This inductive approach to staff development stemmed from presuppositions, discussed later in this paper, about the nature of teaching and about classrooms as learning environments. As of this writing, our work with the teachers and administrators is still in progress. Because of that, and because of limits in space I will not discuss the project further here.

The Content of Observation Notes

In thinking about what I look at in classrooms, I have consulted the notes I wrote during visits to Mrs. Smith's first-grade classroom. The visits occurred almost weekly. The notes are the typical running narrative field notes made by participant observational researchers who study teaching from points of view that are sometimes called qualitative or ethnographic.

Each time I write field notes, certain kinds of information ~~always~~ appear in them. There is always information on events that occur, on the times and places at which the events occur, on the cast of characters in the events, and on patterns of social relationships among those characters. Usually there is information on academic subject-matter content as well, if that is a major focus of the event. Formerly my notes contained very little information about subject matter and much about social relations (see the discussion in Erickson, 1982b). Currently there is much more on subject-matter information than there used to be.

More concretely, what I do on the first day is to draw a map of the classroom, identifying the seats of the children and the major areas in which various kinds of action take place. In Mrs. Smith's room, some of these places included the main chalkboard (with flagholder attached holding a United States flag), the teacher's desk, the trays into which students deposited their written work, the large rectangular tables around which students' chairs were placed, the round reading table, a row of hooks along the wall on which the children hung their coats, a long shelf on which cardboard cylinders were placed (actually large empty cartons from an ice cream store) in which the students stored written work, and memos from the school that were to be taken home.

As the children enter the room in the morning I begin to write notes, jotting down the times at which major activities begin. For Mrs. Smith's room, major activities at the beginning of the day include the Pledge of Allegiance, updating the weather chart, taking lunch count, explaining seat-work, and the first reading group. Sometimes as the action happens thick and fast, I just sit, watch, and listen. Sometimes I videotape on the first day,

other times I help an individual child or two. Usually, however, I keep writing, even if the video machine is recording.

When writing, I note major phases within the named events. This is the next level of detail in the notes. Boundaries between phases within events, occur as rearrangements take place either in the focus of the subject matter or in the patterns of social participation (or in both simultaneously, as is often the case). Often the teacher and the children do not label these phases, or attend consciously to them, although there are exceptions to this, for example, the "cleanup" phase at the end of an art activity. An example of phases within an activity occurred on the first day I visited, which was Lincoln's birthday. The overall activity was explaining seatwork. A few sentences about Lincoln had been written on the board. The children were to copy these on the (lined) bottom half of a large piece of paper and draw a picture on the (unlined) top half that would illustrate what the sentences said. The first phase within the activity was general discussion, apparently continued from the previous day, about who Lincoln was. During this discussion children volunteered comments without raising hands and the teacher did not designate speakers. The next phase was a question-answer sequence about which war occurred when Lincoln was president. Here the children volunteered for turns at answering and the teacher designated respondents by saying the child's name. There was more than one answer in the sequence because the first child picked said, "World War II?"

After the question-answer sequence, the next phase was reading aloud the sentences about Lincoln that were written on the chalkboard. This was done as choral recitation, with the teacher reading with the children and pointing to each word with a pointer. Then in the next phase, the teacher explained the procedure for using the large sheet of paper--copying the sentences on the

bottom part and drawing an illustration on the top part. In the final phase of the activity, the teacher explained a word recognition ditto sheet that the children were to fill out.

In recording whole activities, phases within them, and action within the phases, I note the time the activity begins and the time of each new phase within the activity. As each phase occurs I transcribe as much as I can of the children's speech, trying to show in the notes the exact words, timing, and intonation that was used. I also transcribe salient nonverbal actions by the teacher and students, attempting to describe them in detailed behavioral terms rather than in terms that involve inferences of intent. For example, I would write "Sam picked up Mary's worksheet, folded it in half, and put it back down on the table." I would not write "Sam was annoying Mary" or "Sam was annoying Mary by messing around with her worksheet."

I attempt to avoid paraphrase of either the verbal or the nonverbal behavior that occurred, not in order to write a disembodied, so-called objective record, but because I assume, especially at the outset of working with a teacher, that I do not know what is going on. This is a fundamental presupposition of working with the teacher. I also assume that the teacher doesn't know what is going on, in a full sense, not because he or she is incompetent or irresponsible but because of the information overload and time pressure in the classroom. Experienced teachers respond to the surplus of information and shortage of time for reflection in two ways. One way is to let routine performance become invisible in its enactment. The other way is to look very briefly at what is happening--a quick scan of a student or a group of students. Let us think about what the teacher sees and hears during his or her practice by using these ways of paying attention from within the action of teaching.

Limits in Teacher's Routine Awareness

Consider first the significance of our basic human ability to allow the content and process of customary actions to become invisible to us as we perform them. A psychologist might say that overlearning enables us to perform routines preconsciously, without reflection. An anthropologist or linguist might say that most of the cultural and linguistic rules (or better, operating principles) that are basic to our conduct of everyday life are implicit and outside awareness rather than explicit and inside awareness. Cultural learning teaches us what not to see and hear as well as what to notice consciously.

Our capacity to perform customary action intuitively is a tremendous asset as well as a significant liability. We cannot reflect consciously, continuously from moment to moment, or we would be overwhelmed with information and continually immersed in deliberate decision making. There are costs, however, that are inherent in our liberation from too much information. Sometimes we need to look very carefully at the activities in which we are involved, looking from within the action in a very distanced and reflective way. If one never subjects the "taken-for-granted" to scrutiny one is unable to deliberate on it when needing to do so.

One kind of scrutiny in the classroom is the "quick scan"--the experienced teacher's intuitive radar. There are trade-offs inherent in the use of the quick scan to scrutinize consciously the taken-for-granted. The main benefit is that the quick scan is economical in terms of time. The main cost of the quick scan is that it produces snapshot views of behavior. Those snapshots may be clear and vivid, and thus easy to recall later, but within their frame they do not provide information on what was happening before and after the bit of behavior occurred that was attended to momentarily. This is a

check list way of looking. Because of its brevity, it leaves the teacher with a memory of a particular bit of behavior rather than of a larger sequence of action within which the behavior occurred. Action happens in connected sequences. Understanding the organization of actions requires that one somehow take a look that lasts longer than a split second. During this longer look one can see more than can be seen in a quick scan.

Both because of the invisibility of routines and because of the tendency to scrutinize bits of routines by using the quick scan, there are serious limits on what the teacher can routinely attend to while teaching. I have noted some of the advantages as well as the disadvantages of this. The main point here is that the limits are real and they are inherent in everyday practice. Another way to put this is to say that, over time, experienced teachers have learned ways of processing intuitively much of the buzzing and blooming confusion of daily classroom life. This means they have learned how *not to see* the content of learning environments in their classroom--the structure of subject matter and social relations that makes up the enacted curriculum.

Recent research on teaching has pointed to the importance of student "time on task" (see, for example, Denham & Lieberman, 1980, and Brophy & Good, 1985) or in a more felicitous phrase, "active learning time" (Harnischfeger & Wiley, 1985). If that time spent is crucial for mastery, it is especially important that the teacher possess strategic ways of looking at and thinking about what is going on in occasions of active learning time--what the enacted curriculum content at that moment might be for a child, and what the child's apparent learning might be, including the learning set--the preconceptions, interests, and feelings the child brings to the task.

In working with experienced teachers, I have found that some aspects of the enacted curriculum are invisible to them, precisely because as good

teachers with years of experience, they have learned to put their attention on "automatic pilot." The main thing I have to offer the experienced teacher is a way of looking that stretches the span of attention across longer strips of time. When the teacher does this, he or she begins to raise new questions about sequences of action as wholes and about more complex patterns of ecology between the various actors and objects in everyday classroom activities. This way of looking with new eyes makes the familiar strange; it makes the commonplace problematic and interesting again. What is interesting, however, is often also a bit scary. One enters the threshold of reflective awareness with profound ambivalence--the tension between approach and avoidance.

Learning to tell stories about one's own everyday experience is one means of crossing the threshold of awareness. These stories have often been dismissed by academics as "merely anecdotal." Yet they are a means of gaining an interpretive sense of our experience that can be called *narrative understanding*.

Remembering as Narration

Let us think about the nature of a narrative understanding of events and ask what insights such an understanding might have to offer teachers. Personal narratives take the form of stories about what happened to us and to those around us. It might seem that awareness must precede narration, but that is not necessarily so, for telling stories is a means of thinking. Etymology points to the significance of narration as a mode of thought. The terms *story* and *history* are related. In the original Greek, *history* means inquiry into events as well as a report of the events. This is true for personal history as well as for history of a broader scope. As one renders an account of past events in one's own experience, one takes a step back from the

experience. That is a point at which reflection can begin. Thus, the very act of telling a story about what happened--producing an account of sequences of actions that occurred in the past--can be a means of developing deeper understanding of the organization of those action sequences.

A key feature of this deeper understanding is its narrative character. Considerable evidence exists from schema theory and the empirical work that has followed from it in contemporary cognitive psychology and cognitively oriented linguistics (Bartlett, 1932; Schank & Abelson, 1977; Becker, 1979; Chafe, 1980; and Tannen, 1984) that people use narratives as a way of making sense, both in remembering past events and in anticipating immediate next moments in their current experience.

Narratives have a story line--a plot. It is an old notion that clear knowledge of plot is important for sense-making. For example, Aristotle in *The Poetics* saw plot as the essential foundation of drama. He defined plot as a sequence of necessarily connected actions (i.e., reasonably expectable patterns of succession). Literary critic Kenneth Burke (1969) has influenced linguists and social scientists in the development of a "dramatistic" theory of social action in which plot and scene are central concepts. Rosen (1984), the English teacher educator, has recommended that teachers learn to write narrative accounts of life in their classrooms as a means of developing deeper insight into their teaching.

From a variety of disciplinary points of view, research suggests that a sense of story seems to be the way by which people organize cognitively their culturally learned knowledge of the routines of daily life. For example, when people see a knife they place it in a sequence of actions, social relationships, place, and time--something being cut, someone doing the cutting. The same holds for a pencil and paper. Who is writing? What is being written, to

whom, toward what end? These are elements of a story--the who, what, when, where, and why of daily life.

To use another metaphor, it seems that, in remembering, people interpret the meaning of the snapshot view of isolated objects and actions in terms of the place of that snapshot in a home movie. The home movie version--recording a succession of events before and after the snapshot--answers more completely for us the story questions of who, what, when, where, and why. The snapshot by itself cannot tell us all of that. The home movie provides a more comprehensive view.

As one reflects on the movie, one derives a more powerful and coherent understanding of the event that was filmed than by looking at a few snapshots. Moreover, with a short movie shot one can provide instant replays of strategically significant sequences. One can even freeze the frame to stop the action. The freeze frame is a snapshot, but it is a snapshot in context, and it is one chosen deliberately after some reflection. It is apparent, then, that the home movie makes available a different order of understanding than the snapshot does. One can make a snapshot from a movie but one cannot make a movie from a snapshot. The movie version tells a story, while the snapshot only points to one.

The Natural History of Enacted Curriculum as a Focus for Staff Development

Why is telling stories as a mode of inquiry especially appropriate for experienced teachers as a means of staff development? Because a narrative understanding of classroom events can become a way of making visible the invisible routines of the enacted curriculum. By this transformation, the enacted curriculum as experienced by students can be seen more clearly and

fully. It becomes available for deliberation and for redesign, if and when that is appropriate.

The teacher is responsible for seeing to it that students are actually engaged by the curriculum, that is, that they spend active learning time interacting in learning environments that have certain substantive contents. For the individual student, the curriculum as enacted consists of concrete tasks concretely engaged in within daily classroom events. Those aspects of curriculum that are not actually engaged by a student do not exist for that student.

An approach to staff development can be grounded on these insights. The approach presumes that the ability of the teacher to look at and deliberate on the enacted curriculum of the classroom--its content and process--is pedagogically crucial for the teacher (unless one assumes that curriculum can really be student-proof and teacher-proof, an assumption I find unwarranted). Experienced teachers can quite readily learn to see the enacted curriculum that has become invisible to them. They do this by learning to take longer looks from within the action--moving from the quick scan and the behavioral snapshot to the short home movie as a way of remembering classroom events. Some stimulation is needed to begin to take longer looks at classroom life in order to consider as a project of natural history the enacted curriculum in the room. Stimulation toward a continuing stance of the teacher as a natural historian, as a more observant participant in one's own daily practice, is the central point of the staff development effort in which I am currently engaged.

Beginning and Continuing Conversations with Teachers

The preceding discussion sets forth a perspective that guided what I did as Mrs. Smith and I began to discuss what I saw in her room on the first

days I visited. I asked her to write her recollections of what happened in a classroom event she thought was interesting for further discussion. She did so, and I wrote my recollections of the same event. Then through exchange of dialogue, journal entries, and discussion we began to compare and contrast our versions of the story, noting what she emphasized and what I emphasized. Neither account was treated as superior or more objective. Her narratives were in first person, mine were in third person. Using a heuristic device, we focused on the similarities and differences in the contents of our stories.

Out of our scrutiny a theme emerged: noise. What was classroom noise, we asked? It wasn't just any sound--some "hearable" phenomena were noise and others weren't. In later visits and dialogue it became apparent that students' movements could sometimes be "noisy," even though no decibels would appear on an audiometer when its microphone was pointed at the students. Noise, it seemed, was disruption. That led us to ask about what the nature of the order was that was being disrupted. At that point we were talking and writing about classroom task environments, in the places and times of their enactment.

We have only just started to work together. Likely next steps will include videotaping events of interest and reviewing them, separately and together. The teacher is already taking longer looks than before. I will continue to ask her to stretch her span of attention to connected sequences of activity, looking and remembering from within the action of teaching. Reading and writing instruction has emerged as a theme; I will give her a set of articles that outline the range of major options for social organization of time on reading, as well as outlining the range of opinions on the nature of reading skill acquisition. I expect we will begin to look closely at the range of kinds of engagement with written text that occur in the room. We will begin

to think about changing some of the task environments involving reading. But first we will look a lot.

Some of this looking is being done by the other two teachers. They have been writing narratives in dialogue journals and discussing the journal entries with other staff in the project. Next steps in coordinating these natural histories of one's own practice will involve the teachers' visiting one another's rooms to observe and the exchanging of videotapes documenting routine events with one another.

None of us knows where all this will lead, and so I will stop the discussion of our staff development work here. In the next section I sketch in more detail some notions that are basic to our efforts. I emphasize especially certain aspects of classroom task environments that can become visible through a natural-history approach to narrative inquiry. Before turning to those topics, however, a concluding note is in order. It should be obvious that the kind of staff development our project has initiated must start with the immediate interests and questions of the teacher and must proceed quite slowly across time. This approach is not a brief workshop, but an attempt to begin inquiry with teachers that they will continue with themselves and with others in the future. Such inquiry takes time, and that is a short commodity for teachers. Released time for this sort of deliberation through peer consultation is one of the organizational rearrangements that must accompany this type of staff development. To provide time for reflection each week, as well as to hold teachers accountable for systematic study of their own practice, would be to make a fundamental change in the role of the schoolteacher as a professional. Such change will not come easily. It may well be necessary, however, if the quality of teaching is to improve generally and if teachers are to find their profession worthy of continued interest and effort.

I believe there is no quick fix or cheap solution to help experienced teachers help one another develop more powerful reasoning about their teaching. The work our project has begun is a bit like psychotherapy, and our experience up to now makes us think of the joke about the therapist and client:

> Q: How many psychiatrists does it take to change a light bulb?
>
> A: Only one, but it takes time, and the light bulb has to really want to change.

Social Constructivist Perspectives on Classroom Tasks and Teaching

There are various ways of thinking about the nature of the tasks in which teachers and students are engaged. During the late 1960s and early 1970s a model of teaching emerged from the literature on teacher effectiveness. Throughout the 1970s and into the 1980s the view of the role of teacher became that of a person whose job it was to keep learners on task. Yet there continues an older tradition, one that attempts to look at the social construction of teaching and learning in the classroom--the genesis of tasks, time, and place in social relationships.

This older tradition looks at teaching and learning dialectically, as John Dewey (1939) did, although he was not the only person to have looked at human relationships in that way. Dewey worked in an intellectual environment in which people were learning to think systematically about the ways in which people in interactions constitute environments for each other. His colleague, George Herbert Mead, thought the same in the 1890s; and in the 1930s Mead gave a series of lectures at the University of Chicago that his students published posthumously under the title *Mind, Self and Society* (1934). In the 1920s and

'30s the Soviet psychologists--Vygotsky, Luria, and their students--saw that what was called "thinking" was not simply going on inside a person, but was present in the transaction between the individual organism and its immediate environment: people, objects, learned values, signal systems, and communication systems (see Vygotsky, 1978).

In the 1960s and '70s process-product research on teaching was developing its technology and accumulating a substantial body of empirical data and conclusions. About the same time cognitive psychology, under the leadership of Herbert Simon, was developing some new conceptions about thinking that came from work in computer science. Under the leadership of Michael Cole, cognitive psychology was discovering the Soviet psychologists. Part of the thinking about mind that became reintroduced was the social constructivist way of thinking. Walter Doyle in his review article titled "Paradigms of Research on Teaching" (1977), said that education was actually undergoing a paradigm shift toward a cognitive approach. Doyle's point has been reiterated and extended by Shulman and Carey (1984).

Axioms and Questions as Grounds for Staff Development

As a social constructivist, I propose the following axioms regarding the nature of classroom work by students and teachers. These are conceptions that I believe need to be held by teachers as well as by university-based researchers. They have not been addressed in the research literature on teacher effectiveness nor in the staff development approaches derived from that research.

1. Every child and every teacher is 100% of the time on task. There is never a time when any child or teacher is not on task. Consequently there is no such thing as *off-task behavior*. The fundamental question for teachers

thus becomes "What's the task environment and the work that the learner is busy at?"

2. Everybody is someplace. No one is ever no place. A question for teachers thus becomes, "Where are the places in time and space that tasks are being worked on?"

3. Everybody is continually making sense. It is not that some people make more sense than others or that the teacher is making sense and the children are learning how to make sense; everybody is making sense all the time. The question for teachers becomes, "What sense is this learner (and I as a teacher) making of the task at hand?"

4. Everybody teaches and learns. Teachers learn from students and students teach--one another as well as the teacher. The question for teachers becomes, "Who's teaching whom what, when, and where?"

5. Everything is potentially invisible. Some aspects of the complex work of teaching and learning are visible to people in the scene. Other aspects are outside the actors' awareness. However, there is always more going on than anybody could attend to consciously. The question for the teacher becomes, "What's visible and invisible in this scene for the learner and for me?"

6. At any moment there is always more than one thing happening. The question for teachers becomes, "What's going on in subject matter while this is going on in social relations?" Another question is, "What's happening over there while this is happening over here?"

7. Some very important things are not there at all to be seen because they happen in different places and times. Some past actions in separate places may be influencing the teacher's choices at the moment (e.g., policy decisions by administrators or government officials and occurrences the

teacher remembers from work with a class in a previous year). Other past actions from the same place may influence the teacher's choices (e.g., remembering what a particular child or group of children did yesterday, or last month, or at the beginning of the year). Some future actions, as anticipated by the teacher or by the child, may also influence their choices--what they see as the likely consequences of what they will do now (e.g., what the teacher envisages as a potential future reaction by the principal or fellow teachers to what (s)he plans to do).

The choices of teacher and student are made in the context of lived history--such diachronic information is not available to the intermittent observer who can only take a synchronic look at any point in time. The question for teachers becomes, "What do we need to know from outside this classroom and this point in time in order to make sense of what we see going on now?"

Let us examine some reasons why these dicta and questions could be appropriate for use in staff development. Contrast this way of thinking about teaching with the view that one gets from the literature on academic learning time. It is an elegant literature in some ways, and the original formation by John Carroll (1963) is an elegant formulation. There is intuitive appeal, aesthetic attractiveness, coherence, and power in the assertion that people must spend time as a necessary condition for learning. This points to the importance of the curriculum as it is actually enacted. There does, indeed, seem to be a very clear correlation between the kinds of time that students spend on certain kinds of activities and the kinds of learning that they are able to demonstrate at the end of the year on standardized tests. Such findings, however, do not tell us anything about the tasks themselves, and it is the tasks themselves and the people doing them with which teachers chiefly are concerned and have to live. Teachers are not able to live in a world of such

elegant abstraction. They live in a world of time and space and people and materials and social relations of top-dogs, bottom-dogs, insiders, outsiders, listening, not listening, focusing of attention in various places--the list could go on and on.

Reduction of these complex concerns to a metric of time on task has all the problems that reduction carries with it. There are costs that accompany the benefits of elegance and coherence. I believe that one of these costs is to de-skill the teacher and to ignore the teacher's own way of thinking about what he or she is doing. If the fundamental problem is reduced to keeping people spending time on task, then the teacher learns through experience less and less about how to look at and understand people, activities, and tasks. This is fatal for teachers, especially for those in elementary schools.

Another of the costs is meaning stripping. When one abstracts behaviors analytically from their situations of use, counts them up, reassembles the frequencies statistically, and subjects those tabulations to correlational analysis, what gets lost in the process is the situated meaning of the original behavior. According to one kind of philosophy of social scientific inquiry, meaning stripping is a deliberate strategy. From that research perspective it is seen as necessary to separate meaning from the point of view of the actors and meaning from the point of view of the scientists. But this becomes a fundamental problem in research on teaching, since the world in which the teacher lives is the world of those situated meanings--what does it mean when this child, rather than that one, looks out the window now? Who is on task and who is off task?

The point here is that work and its meaningfulness are not always obvious from a quick reading of the surface behavioral forms of the work's enactment. Rather, to understand the meaning, one must determine what the behavioral

forms do in the specific situations of their use. This is to look for meaning in context. On this point, many contemporary anthropologists, linguists, and sociologists, and many cognitive psychologists, as well as Mead, Vygotsky, and Dewey, are in agreement (see Mishler, 1979).

If one wants to think about meaning in context one must first think carefully about the notion of context itself. Context is a term that is used quite differently in different research perspectives. Process-product researchers use the term context when they look at reading groups, at large group instruction, and at transitions between named classroom events. In contrast, social constructivist researchers use the term context to mean more than that which surrounds a behavior--that which stands outside the text. Just as modern literary criticism is reconstruing the notion of the relation between text and context, so current social scientific research suggests that one does not simply see an action and then a context around it; one looks at the set of relations between actions that mutually construct the context. The original Latin term, *contexere*, is a performative verb meaning "to weave together separate strands." That is what people are doing. As my colleague Ray McDermott puts it, "people in interaction create environments for one another" (see McDermott, Gospodinoff, and Aron, 1978). In other words, the disparate strands of social action are woven together into an ecosystem, and the ecosystem itself is the context, from a social constructivist point of view.

As a researcher in the classroom, I look for the task environments that teachers and students create for each other. These are task environments within which teachers learn as well as teach and students teach as well as learn. I focus attention on the nature of the classroom tasks that are enacted; on their implicit and explicit content and process. In doing that

special kind of task analysis, I try to consider how two related strands of curriculum are woven together in enactment. These two strands are the structure and content of subject matter and the structure and content of social relations by which the learners and the teacher engage the subject matter. One can now consider in detail what is involved in doing this special kind of task analysis.

A Social Constructivist Model of Classroom Task Structure

The academic tasks or activities within which people create environments for each other can be thought of as having a subject-matter task structure and a social participation task structure. Because people construct these contexts in real time, there is always a sequential set of steps in a subject-matter task. Some cognitive scientists have become very good at showing flowcharts of successive steps (decision points) in subject-matter task processes. Also, a corresponding sequential set of steps exists in the social participation task, because some set of social relationships always exists. Even if the subject-matter task involves reading a book alone or looking at an interesting bug, there is still a social relation. Part of the meaning one attributes to a passage in a book depends on what one knows of the meanings of that passage to other people who have read it. Furthermore, the participant in a task holds culturally learned notions about what it means for a person to be doing the task--reading a book, looking at a bug, or chipping a piece of flint. All of the task environments across the last five million years of human evolution have entailed some social relationship(s) at any given step in performing the task. (For more extended discussion, see Erickson, 1982a & 1982b).

As an example of how, in academic tasks, the task structures of subject matter and social participation operate together, I will use a task environment that is simple compared to much of what we do in the classroom--consider a child who is given the following first-grade math worksheet. (S)he needs to know all of the steps and concepts involved in successfully completing the task:

Name: _____

2	4	7
+3	+5	+4
4	9	2
+3	+8	+8
6	6	1
+7	+0	+6

There must be an awareness of the propriety of identification by placing one's name in the blank. Then there is a set of items to be completed, not necessarily in order, but there must be some response given to each. To do the first of these items there must be recognition of the fact that the written symbols are numbers and that they stand in a problematic relationship to each other. There must be numeration (i.e., class inclusion and one-to-one correspondence) and assessment of the quantities represented by the numerals,

in this case "twoness" and "threeness." There must also be an understanding of the appropriate location of the answer under the problem and familiarity with the numerals that need to be used to represent that answer. The next step is to go on to another of these items and go through the same process recursively, both in the logical sense and in the purely mechanical sense of repeating the steps. The third item requires additionally that one know the conventional way (place value system, modulo 10) to represent numbers greater than nine.

The social participation task structure also has a set of rules that go along with these steps. There must be paper and pencil (not to be dropped on the floor) and an awareness of the propriety of working at one's own desk. When the teacher says to "start the workbooks," there is usually a protocol to be followed such as start working by writing one's name and then keep going, finish everything, and do it quietly. Then there are the procedures for what can be done if one gets stuck. Is it permissible to ask a neighbor for help? May one ask the person in the room that is most likely to have the correct answers, or is there a monitor or other designated person to ask for help, or is the teacher the only person who may be asked? If the teacher is at the reading table, must a question be delayed until the teacher is turning a page, or may it appropriately be asked between page turns?

This is just one example of the fairly concrete practical knowledge that a person needs to accomplish a seemingly simple classroom task. There is a whole local world full of conventions for task performance. Beyond that there are nonlocally derived sets of conventions and meanings, in this instance extending all the way back to the Arabs who invented the symbol system from which these relationships and quantities are communicated. Language is another such nonlocally derived symbol system. One student may ask another

for help using English or Spanish or Chinese depending upon who is in the room, and if one's primary language is Spanish and one knows that somebody else in the room speaks Spanish well, one is more likely to ask the person who speaks Spanish.

Sometimes a new child comes in and another of the children says, "Pssst, you can ask your neighbor." That is teaching done by the student. Sometimes the children run out of worksheets to do, so they start other tasks that may not be what the teacher wants them to do (remember that everybody is always 100% on task). These children are not off task; it is just that the task they are on is not one assigned by the teacher. If enough of them start doing that, collectively they may begin to teach the teacher; for example, two subsets of social actors, those at the reading table and the others who are walking back and forth, may be creating environments for each other such that the teacher needs to do something about it. The teacher may stand up and turn the lights out and say, "Everybody quiet," or stand up and say, "I like the way Sammy has almost finished his math worksheet." Those are the behaviors that process-product researchers count. Rather than asking, "How can I keep more students on task?" the teacher may take a more fundamental look and ask, "How am I going to get enough work available so that the people who finish their work more rapidly than others have a place to go or should I just not worry about it since everybody is on task?"

The teacher, however, may have problems if the definition of effective teaching is that everybody looks like a Calvinist Protestant; they are not only doing work, but doing work that looks as if it hurts. Multidimensional work is not taken into account in discussions of time on task. Elizabeth Cohen (1976) and Robert Slavin (1980) have been working for a number of years on creating additional kinds of task environments. These are environments of

people and subunits for cooperative work groups for children. Peer tutoring is only one of the many underused resources for increasing active learning time.

If one were to think about increasing students' active learning time by increasing the range and number of possible places to be in the classroom while still working within curriculum, then one could bridge a false dichotomy--that between management and instruction. The staff development literature makes a separation between management and instruction, as if curriculum were one thing and what to do with students to keep them in curriculum is something entirely different. If teachers or observers see them as different, their attention is being directed away from curriculum in its fullest sense and toward such things as management moves--separate little reinforcing acts that they can do to learners. They do not look at the way in which the learner is teaching them how to relate to students. They also do not look for the task environments that are already there in the scene.

Such an emphasis also draws one's attention away from the necessary "wiggle" that needs to be built into task environments. Engineers do not build bridges with totally fixed connections, because if they do the slightest stress will cause the whole bridge to fall apart. Similarly within learning task environments, if there is not room for some wiggling, then the slightest deviation from what is supposed to happen becomes a big problem. Such wiggle could allow for slack in the social arrangement to relieve some of the stress that occurs when people encounter intellectual difficulty--as social relations get tougher and tougher.

For example, if one wants to teach an especially complex kind of turn-taking system for conversation, then the teacher may choose subject matter that is not as demanding. Thus the points of difficulty or potential

stuckness in the subject-matter and the social participation task structures will not be occurring at the same time. The teacher needs to be able to work back and forth between the two structures and their relations. To have that wiggle in the task environment is to create a qualitatively different task than if the wiggle is not there.

An example of that qualitative difference in the nature of the learning tasks is found in a recent chapter by Lave, Murtaugh, and de la Rocha (1984) on the striking difference between school arithmetic tasks and the arithmetic computation that people do when they go shopping in the grocery store. The researchers had fieldworkers follow people around some California supermarkets, asking the shoppers to talk aloud about how they computed and how they made shopping decisions. The subjects were given a test and many of the shoppers had trouble with arithmetic operations that they could use accurately in the grocery store. The authors' elegant analysis shows that when we go to the grocery store we help construct the arithmetic task. We have ways of setting it up so that we can solve it, and we become very creative in thinking in terms of chunks--this can at this price, those four boxes at another price--so that we work the problem around and come to the correct solution. That means we can wiggle this or that part of the task. Nobody is there in the store telling us that there are a set of mathematically canonical algorithms that we must use.

It is not a new idea in education that the teacher's role is to provide for the necessary wiggle in tasks, thus allowing students to construct the task for themselves. In a classic article by Wood, Bruner, and Ross (1976) the authors characterize teaching as providing a scaffold. Engaging the student at the zone of proximal development, the teacher builds a scaffold of connections to where the student's understanding and interests are; and

then as the student's capacity to work on his/her own rises, the teacher takes the scaffold down and builds it higher or builds it someplace else. That capacity of a teacher to engage where the student is and adjust the social participation arrangements or subject-matter task arrangements to get to the zone of proximal development is what Wertsch (1979) calls *proleptic instruction*, that is, instruction that reaches out right to where the student is, not just to stay there but in order to draw the student on to the steps that are envisioned beyond.

That's what I think people used to call good teaching. But it presumes some things about society as well as about cognition. It presumes that the teacher and the learner have the authority to be flexible with tasks. This is a matter of the allocation of power in the society. If the teacher doesn't have the authority or the opportunity to reconstruct these tasks so as to do scaffolding and engage the learner's zone of proximal development, then both the teacher and the learners are stuck spending time on tasks about whose construction neither have anything to say. That could be very alienating work.

The beautifully colored instructional books, workbooks, dittos, and the tests that accompany those materials unit by unit have removed from the teacher and the student the opportunity to construct tasks with what may be a necessary amount of elasticity. In recent attempts to monitor ever more closely the implementation of such teaching materials--those that are designed to be learner-proof as well as teacher-proof--we may have inadvertently backed ourselves into a corner in which severe constraints are placed on the capacity of teacher and students to negotiate proleptic instruction together. Staff development efforts that try to be teacher-proof and learner-proof only exacerbate this problem.

Since learning and teaching are a matter of social relations as well as of some kind of cognition that happens putatively inside the head, one needs to have a way of thinking about these together. In addition, one needs to look at the micropolitics of teaching. One can see the teacher as a politician in the best sense: the manager of the allocation of desired goods, the manager of places to be in the world. Good politicians manage access to places that people enjoy. It follows that teachers might well read Machiavelli or Aristotle if they wish to become more effective. Issues of safety and risk, of morality and love, of honor and justice are the stuff of everyday life in classrooms. These issues are the domain of politics according to Aristotle--a domain not of theory but of *praxis*, practice. The practice of teaching can be seen as the practice of politics.

Teachers need ways to see complex social relations operating along with cognitive relations, to see distinctive local meaning-in-context along with meanings derived from nonlocal sources. They need to be able to make more visible those invisible parts of total learning environments and to include in their analysis the things that affect people's behavior but that cannot be seen because they occur in different places and times, some of which are outside the classroom. The research literature on teaching has overlooked some very important aspects of teaching and learning: that everybody is 100% of the time on task, that everybody is someplace in particular, that everybody is making sense, that everybody is teaching as well as learning, and that task environments need to be flexible enough to withstand stress and to allow for mutual scaffolding work by the teacher and learner.

Conclusion

I have presented three sets of ideas as foundations for staff development. First to be presented was the notion that narration of classroom events could be a form of natural historical inquiry into the organization of those events as enacted curriculum. Next to be presented were the seven dicta on teaching and learning that were proposed as axiomatic sources of questions the teacher might ask about the enacted curriculum as it happened in routine classroom life. Last came the model of the task environment as enacted curriculum. This is a model that takes account of the ever-present connections between the social and academic dimensions of classroom tasks. By its emphasis on the sequential organization of routines across the time of their enactment, the model allows one to develop a narrative understanding of the specific structure and content of the task environments that students customarily experience.

The discussion has raised many issues. Some are old for me and no doubt for the reader as well; some are quite new for both of us. My colleagues and I are beginning to test these ideas in staff development work. We do not know whether or not our efforts will lead to higher student achievement on standardized tests. But there are important aims of teaching that reach beyond what those tests can measure. In attempting to achieve those broader aims of teaching, and of education, I believe that it is time for teachers to look closely at their work as natural historians who scrutinize the enacted curriculum. For the experienced teacher, staff development can consist of learning to deliberate on classroom tasks as they occur in the concrete times and places of daily life in that teacher's own room.

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